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PRAIRIE FIRES.

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"In treating of the historic evidence of prairie fires, I begin by claiming that they have always been the work of man. Lightning, the only other admissible agent, will be precluded when the manner of the burning is considered. For fires invariably take place either in early spring or in late fall, seasons when lightning is very rarely seen. But, admitting the occurrence of an electric discharge which has fired the grass, it must still be remembered that one such would go but a very little way towards clearing the plains; there is little doubt that it must be kindled a great many times, as will be admitted on noting the usual course of a fire. From its starting point it spreads in a cone-shape down the wind, until at length it is stopped by a change of wind, a shower of rain or a body of water: and as rain is abundant and lakes very numerous at these seasons, it is probable that not many fires extend further than a few miles. If in its course a fire meets a small body of water, it often overlaps it at each end, and then turning on it is again united, but leaves a great triangle of unburnt prairie in the lee of the lake, and this piece being now surrounded by a guard of burnt prairie, is safe for the year, and in it the saplings of last year's growth have gained so much. Since then the fires are so often stopped, and since the fires are so ready to spring up when protected, it is evident that the fires must be kindled many times each year to keep the plains swept. Therefore, I think that no hesitation need be felt in concluding these conflagrations to be the work, not of lightning, nor of spontaneous combustion, but of man for ages back. Next I would call attention to the fact that those parts of the country which are protected from fire are covered with bush.

THE PROTECTING BARRIERS.

There are of two kinds, water and sand. Every hollow which contains water during May

and October—the fire months—has its clump of trees; every river and lake is fringed with them, and the land is nearly all covered by dense forests in the north country behind the great guardian chain of rivers and lakes, among which are the Saskatchewan and Lakes Winnipeg and Manitoba. Sand is a protector, because the grass growing on it is too scant to carry the fire. Hence, in such places as the sandhills, there are as many trees as the almost sterile ground will bear. The seeds of these trees are carried all over and are ready to spring up into new woods; and if a piece of prairie, almost anywhere, be protected for two consecutive years it will then be found covered with a growth of poplars and willows, as may be seen this year about Carberry, for the smooth prairie escaped the fire last year and this spring, and is now dotted all over with tiny saplings. Therefore I conclude that but for the fire the whole country would be covered with bush. And there is proof that at one time these plains were well timbered. Far out on the open plains sticks may be picked up and wood unearthed, all charred, and showing where once were trees. Almost every settler of a few years experience can recall how yearly the neighboring bush was burnt smaller and smaller until there chanced to be a very dry spring or fall, the dead leaves were as dry as the grass, and the fire ran through, killing every tree, and in a year or two more the same agent levelled and reduced all the prairie. If then the land was once timbered, and we can form an idea of its rate of clearance, we should be able to form an approximate idea of the time that the fire makers have been at work. But first must be decided the probable starting point. It seems to me that this must have been where now the effects of the burning are most apparent and seem oldest. The country is more and more tree covered as one approaches

the Saskatchewan; therefore the fire makers could not have come thence; nor from the east or west for similar reasons in different degrees. But on the U. S. boundary, about half way across to the mountains, is a great plain which has been so often and thoroughly burnt that not a vestige of wood is to be found. As you leave this going east, west or north, scrub and small timber begin to appear, while the plains begin to show signs of more recent fire action. From this I assume that

THE FIRST CLEARING BY FIRE

was in the direction of the boundary south of Regina, i. e. the fire makers entered the country by way of the Missouri valley. And from this part to the extremes of the fire clearings the distance is about five hundred miles. So far we have found almost no evidence whereby to gauge the rate of clearing. At one time I averaged the annual encroachments and thought about half a mile was near the mark, but the extent of a fire is too fickle a base for mathematical calculation. I find in Prof. Hind's work, vol. 1, p. 318, the following referring to the journey from Fort Ellice to Moose Mountain, a distance of fifty miles: "An old Indian, born in this part of the country, told us that he remembered the time when the whole of the country through which we had passed, since leaving Fort Ellice, was one continuous forest, broken only by two or three intervals of barren ground." This would give a clearance of fifty miles in fifty or sixty years. The Rev. Mr. Flett, missionary, testified that forty years ago the Rapid City trail was through a forest of large poplars. This helps to determine the N. E. boundary of the prairie in Hind's time. Also since the pre-

sent termination of the open country and beginning of the unbroken aspen (or poplar) woods is about between forty and fifty miles north-east of Rapid City. The rate of clearance agrees with that of the previous instance. Prof. Hind, speaking of the change wrought in twenty years, by prairie fires says, vol 1, p. 308, "small 'hummock' of aspens and clumps of partially burned willows were the only remaining representatives of an extensive aspen forest which formerly covered the country between Boss Creek and the Assiniboine." This tract I find to be about 17 or 18 miles across, in a line radiating from the fire centre. This also would give an annual average of less than a mile. These few instances are all I have so far been able to gather and are far too slight and inconclusive to afford a good basis for a theory, yet the reading of this may lead to the discovery or collection of other facts, which may help to shed light on the matter. It must be remarked that what little evidence has been collected points to an occupation of this land by men, for a period of not more than one thousand and not less than five hundred years, and the conclusion loses none of its value from its coincidence with theories founded on totally different grounds. In short, then, I have brought forward reasons for believing that: This was once a wooded country; it was cleared by fire; the fires were the work of man; it would take between five and ten centuries of such fires to effect the present clearance, and their starting point must have been in the direction of the Coteau du Missouri. Therefore, this country was first populated by migration up the Missouri Valley from the Southern Central Plains, between five and ten centuries ago.

